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Although the name of Prof. C. F. Hartt appears as that of one of the editors of the *archivos* at the time (he resigned shortly after the publication of this article), it is due his memory to say that he objected to the publication of the article referred to, and did all in his power to prevent it, well aware that it would bring ridicule upon the editors and upon the national Brazilian museum, of which he was a director. Notwithstanding Professor Hartt's protestations, the description appeared, accompanied by a plate, from which the accompanying figure is copied.

Mr. S. W. Garman afterwards called attention to the absurdity of making a new genus of this animal, which he shows to be an undeveloped form of a species of *Pseudis* (*American naturalist*, October, 1877).

More recently this 'extremely curious little animal' has come to the surface again, this time in the French academy. Especial attention was called, in that body, to the first volumes of the Brazilian *archivos*; and this description of 'a curious batrachian' was spoken of as 'a valuable essay' and 'particularly

of the ponds; and, when disturbed, they jump into the water. In regard to these popular names, it should be remarked, however, that they are too general to lead one to suppose that they are applied to this species of frog alone throughout Brazil.

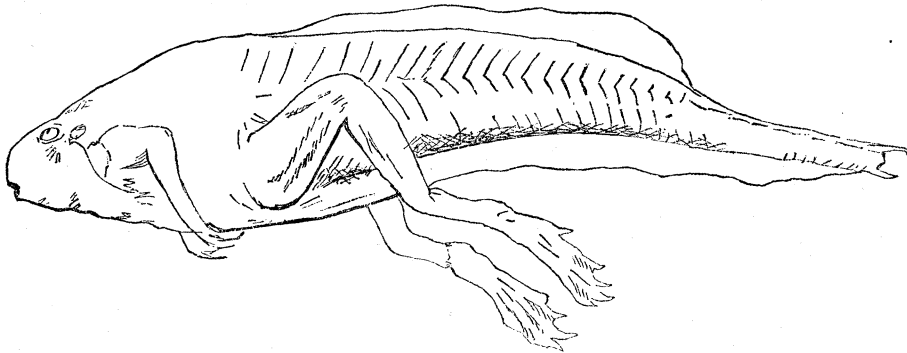
The specimens collected by me are now deposited with Professor Wilder at Cornell university.

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### THE GREELY SEARCH.

THE report of the board called to consider the plans of the relief expedition has been printed, and its principal features have been made public through the daily press. Two vessels have been purchased which there is every reason to believe are well suited for the work;



deserving attention' (*Pop. sc. monthly*, January, 1884, p. 428).

Agreeing with Professor Hartt in regard to its being nothing more than an unusual tadpole, I was anxious to obtain specimens of the animal in the various stages of its development, and thus make an ocular demonstration of the correctness of our opinions.

My work upon the Imperial geological survey, and later other duties, made it necessary for me to travel in almost every part of Brazil, and in some parts of the Argentine Republic and Paraguay; but nowhere could I find or hear of any such animal as that described in the *archivos*. Along the Paraguay River, which I traversed from its mouth to its source, I made especial effort to find it; for the specimen figured was said to have come from Paraguay. At length, during a trip made in 1882-83 to the interior of the province of Pernambuco in Brazil, I was so fortunate as to obtain a number of good living specimens; and it goes without saying, that they showed the *Batrachichthys* to be a mere tadpole. They were taken in an artificial pond near the village of Bonito, toward the end of January, 1883; being found in all stages of development from the tadpole to the full-grown frog, although the very young tadpole could not be had on account of the lateness of the season.

About Bonito these tadpoles are called *cacotes*. They are not uncommon in ditches and ponds, and sometimes occur in such numbers as to seriously interfere with fishing with the net. The full-grown frogs are called *sapos verdes* (green frogs). They are said to live in the weeds and rushes about the margins

and through the graceful courtesy and generosity of the British government, the Alert, well known as the advance ship of the Nares expedition of 1875-76, has been put at the disposition of the United States, without money and without price. A more timely and felicitous service could hardly be rendered; and the sentiment of the country in regard to it is well expressed in the communication of the 21st ultimo to congress from the president and secretary of state.

The position of affairs is about as follows: the Greely party were landed in August, 1881, at Discovery Harbor, with rations equivalent to supplies for three years on the basis used in the U. S. army; with beans, sugar, coffee, canned goods, and antiscorbutics, not embraced in the regular official ration, to the extent, as alleged, of about one year's additional provisions. Beside this, Lieut. Greely reported that about three months' supplies of fresh musk-ox meat had been killed before the departure of the returning vessel. It must be remembered, however, that the demand of human nature for food in these regions is greater than in more temperate climates; and the extra

supplies above mentioned would probably be consumed, together with the regular ration, instead of serving to extend it over a longer period. There is every reason for believing that the supply of fresh meat or game at the station is extremely precarious, accessible only during a few summer months, and perhaps practically absent in certain years. There is therefore reason to suppose that the supplies of the expedition will be entirely exhausted by the beginning of next winter.

On the failure to reach the party in 1882, it may be supposed that every care would be taken by its commander to economize supplies for the retreat last fall. This could not be carried very far; because the stamina of the men, already weakened by two years of arctic exposure, would not bear any great reduction of the ration. It is probable that Greely would have learned by the second summer, that delaying until September might prove fatal to his plan of retreat. He probably started south, if at all, in July or August, 1883. We assume that the party were living and in reasonably good health at that time.

The distance from Discovery Bay to Cape Sabine (see map) is about two hundred and fifty miles. The shore is bold and precipitous; the northern half compact, and almost without inlets or bays; and the usual ice-foot along the rocky walls of Kennedy Channel is, on this side, liable to be much broken by the grinding of floes against it. In this stretch of coast there are three caches of provisions. The first, at Carl Ritter Bay, seventy-five miles south from Lady Franklin Bay, contains two hundred and twenty-five rations, deposited by Greely himself in 1881, and sufficient to sustain his party for nine days. Sixty-two miles farther south, at Cape Collinson, are ten days' provisions, left by Nares in 1875. Fifty miles farther south, at Cape Hawkes, is a cache of unknown extent, but which Greely thought, in 1881, would subsist his party for two months. These, however, were partly in bad condition in 1881, and probably still worse in 1883.

Of the dogs taken by Greely, only eleven survived until the date of his last report, a number hardly more than sufficient to haul their own food from Lady Franklin Bay to Cape Sabine. It may be assumed that any attempt of the Greely party to retreat by means of sledges alone, would be unsuccessful and disastrous. If attempted, it probably would result in a return to their old quarters later in the season, as their only safety for the winter. Sledging over the hummocks of Kennedy Channel and Kane Basin is terrible work, and not

to be compared with that done on open field-ice, like that of the sea north of Robeson Channel, or that crossed by Anjou, Wrangell, and De Long.

The practicability of a successful retreat to Cape Sabine, we believe, depended entirely upon whether the party were able to use their boats, and avail themselves occasionally of their sledges to make portages over ice isthmuses in their way. They were furnished with boats prepared especially for the purpose, besides a steam-launch, for which an abundant supply of coal might be procured from the coal strata near the station.

It is improbable, unless continuous water communication happened to favor them, that the party could transport their effects and records, together with a year's provisions for all hands. They could hardly take, in the four boats, more than eight tons besides themselves, and probably not more than six tons if any coal was carried in the launch. A year's provisions for all hands would weigh over fourteen tons. It would be necessary, therefore, for them to rely upon the stores they expected the relief-ship to cache on the east side of Grinnell Land in 1882, and upon the other caches already mentioned, to supply the deficiencies of their means of transportation.

It is highly probable, also, if the strength of the party had in any way become seriously impaired, that they would find it necessary (failing continuous land-water along the Grinnell Land coast) to abandon all but two of their boats, and as much of every thing else as they dared, to get through to the southern entrance of Kane Basin. Whether, if arrived at Cape Sabine, the caches there would suffice to pass them safely through the winter, does not seem to be certain from the rather confused statements in regard to it. It is also possible (as happened to the English on some occasions) that the condition of the ice alongshore might be such that the caches at Carl Ritter Bay or Cape Collinson, or both, might be inaccessible from the water.

We may conclude from the above facts and assumptions, that (1°) if the Greely party were able to use their boats, and reached Cape Sabine safely last fall, the probability of finding them there at open water is reasonably good; (2°) if they were not able to use their boats, they either wintered at the station (in which case they are probably in fair condition, but will be reached with difficulty, and must be reached within the year to save them), or they made an attempt to sledge southward to Cape Sabine, and can hardly have escaped serious disas-

ter; ( $3^{\circ}$ ) if they reached Cape Sabine, they are there at present, unless forced to attempt the transit of Smith Sound, — a task fraught with such difficulty that it may well be doubted if they could accomplish it. If accomplished, the absence of provisions expected to be found there would prove a grievous disappointment, and possibly the cause of disaster. But we think the prospect of the party, as a whole, reaching the eastern side of Smith Sound, to be almost unworthy of serious consideration, were it not that in matters like this nothing is unworthy of consideration.

The report of the board is sound and judicious, and was doubtless founded in great part upon the wise counsel of men like Nares and Schwatka, which is appended. It recommends a bounty to be offered for the recovery of the party, if north of Cape York, as urged in this journal and by various competent arctic experts among those consulted.

Since then the secretaries of the navy and war departments have united in a letter to Congress, which is too lamentably absurd to be any thing but comic. It has been well answered by Mr. George Kennan in the *New York herald* of March 19. That those poor, dear, stupid sealers and whalers might get themselves into trouble by rushing in where the navy is so much better fitted to tread, is essentially the reason offered by these landsmen as proof of the inadvisability of a reward. The common sense of mankind will put a right value on such a plea. The necessity for competent ice-navigators is sufficiently evident to any one, and is recognized by the board in its report. The necessity of leaving the ice navigation absolutely to their judgment is hinted at by Schwatka in his letter to the board, and much more fully developed by him in an interview published in the *San Francisco post* of March 1. Upon this much depends, as the experience of the *Proteus* in 1883 gives evidence.

The plans of the expedition are not yet fully matured, or at least not officially made public. It is stated that the *Bear* will sail, about April 25, to St. Johns, Newfoundland, to coal, take dogs on board, and proceed at the earliest possible moment to Disco and Upernavik, which it is hoped will be reached about the third week in May. The *Thetis* will follow from New York about May 1, coaling at St. Johns, and conveying a coal-steamer to Upernavik; when all three will proceed toward Cape York and Littleton Island, or Port Foulke, opening communication with the Eskimo at the earliest opportunity.

The *Alert* should arrive at Upernavik by June 1, and proceed during the month toward Littleton Island with the intention of providing a station to fall back upon for the crews of the two advance vessels, and later to send a sledge-party along the east coast of Smith Sound as far as the Humboldt glacier. This duty completed by Sept. 1, and the advance vessels not having been heard from, the *Alert* should return to St. Johns with her report.

The programme for the *Alert* is open to severe criticism. It cannot be too often repeated, that nearly all the chances are against any of the Greely party having reached the east side of Smith Sound, unless from Cape Isabella. The relief-vessels must follow the land-water on the Grinnell Land shore, to make northward progress. If they come to grief, they will have to retreat by that shore; and for them, as for the Greely party, a station on the Greenland side will be of no use, beside adding greatly to their perils — unless Smith Sound is navigable for small boats, which is hardly to be expected, late enough for a party wrecked north of latitude  $79^{\circ} 30'$  to reach the Greenland side. The sledge-party along the Greenland shore will be useful only as a training in sledging for the youngsters. Here it may be observed that the report of the board contains a drawing of a new kind of sledge most ingeniously contrived to be worthless in the arctic regions. It weighs two hundred pounds, and contains bolts, bars, rivets, and varieties of metal, — enough to delight a locksmith, and, at arctic temperatures, keep him more than busy mending the breaks, and the surgeon as much so alleviating the blisters, which would rise wherever bare skin touched it.

It is understood that the expedition is to be commanded by Commander Winfield S. Schley, who will take charge of the *Thetis*, with Lieut. Uriel Sebree as executive officer, Lieuts. Emory Taunt and S. C. Lemly, Ensign Harlow, Chief-engineer Melville, and Passed assistant surgeon Green. The officers of the *Bear* will be Lieut. W. H. Emory (commander), Lieuts. Colwell and Reynolds, Ensign Usher, Engineer John Lowe, and Dr. Ames. The *Alert* will be commanded by Commander George W. Coffin, assisted by Lieut. Charles J. Badger and others not yet named. It is, of course, possible that changes in these details may occur at any time before the expedition departs. No opportunities are to be afforded for scientific observations not inevitable to the voyage — unless, perhaps, on the *Alert*, which returns to civilization.

That the expedition, in spite of crudities of

conception and inexperienced *personnel*, will do good work, we have no doubt; for it is the saving grace of our American navy, that its officers are apt in utilizing brief experience, fertile in expedients, and bold in execution of a task before them.

#### THE GREAT VIENNA TELESCOPE.<sup>1</sup>

AMONG the instruments which I have examined, that to which most interest now attaches is the great telescope recently completed for the Imperial observatory at Vienna by Howard Grubb of Dublin. It is the largest refracting telescope in actual use at the present time, being of one inch greater aperture than that of the Naval observatory at Washington. The contract was made with Mr. Grubb in 1875; but, owing to difficulties in procuring glass disks of the necessary size and purity, it was not completed until 1881. Further delays occurred in mounting, so that it was scarcely ready for actual work at the time of my visit in April last. I made as critical and careful examination of its working as was possible during the unfavorable weather which prevailed at Vienna at that time. My examination was principally in the nature of a comparison of its working with that of the Washington telescope.

*General character of mounting.*—In its main features the telescope is mounted on the same general principle with that at Washington. Both of these instruments are counterpoised on the German plan. The tubes of both are of steel. The rapid motion in declination is by means of a rope attached to the two ends of the tube, and that in right ascension by a system of wheel-work. The clock-work is in the pier below the instrument. The leading points of difference are, that the mounting of the Vienna telescope is much larger, stronger, and heavier in all its parts; that the contrivances for making use of it are more numerous; that an elaborate system of friction-rollers in declination is provided, the Washington telescope having none; and that a more convenient system of illuminating the field and the divisions on the several circles has been adopted.

*Ease of motion.*—In moving the Vienna telescope, one is at first struck with the fact that mere weight is a serious drawback; but when the motion is once commenced, the movement in right ascension is almost as easy as in the Washington telescope. It is, however,

very different in declination. For reasons which neither Dr. Weiss nor myself were able to perceive, the friction-rollers seemed to be of no benefit in easing the motion in declination, which was much more difficult than in the Washington telescope, and, in fact, quite a task upon the strength of the observer at the eye-piece. The quick motion for setting in right ascension is made below the end of the polar axis by turning a steel steering-wheel. This appliance is in every way inferior to the system at Washington, where the same motion is effected by an endless rope hung over a grooved wheel, which the observer turns hand over hand. By this motion the observer at the Washington telescope can make the required motion without taking his eyes from the telescope or the vernier, and without giving any thought to the motion of his hands. But the handles of the steering-wheel are much less convenient to take hold of than a rope; and, if the motion is at all rapid, the operator must be on the alert lest the steel handles strike his knuckles in the attempt to take hold of them without looking. The necessity of care in this respect makes the motion slow and laborious.

*Clock-motion.*—On the system of the Messrs. Clark, applied in the Washington telescope, the screw which turns the sector does not take hold of the circumference of the latter directly, but gears into a complete wheel, the axis of which is connected with the arc of the sector by a pair of brass or steel bands. By this arrangement the toothed wheel makes a nearly complete revolution while the sector is moving through its arc; and the effect of the small unavoidable irregularities in the working of the screw is diminished in the ratio of the arc of the sector to the circumference of the wheel. Whatever advantages this arrangement may have in small instruments, I think that in large ones they are more than counterbalanced by the evils arising from the elasticity of the band, combined with the changes of friction, the action of the wind, and other forces acting to vary the uniform motion of the telescope. Owing to this elasticity, the effect of the wind or of any slight pressure by the observer on the eye-piece is many times greater in the Washington than in the Vienna instrument. But it did not appear to me that the firmness of the connection in the latter instrument between the support of the turning-screw and the tube of the telescope was as great as supposed by those who lay stress on large and stable mountings. I found that, by a simple pressure of the thumb-nail upon the eye-piece of the

<sup>1</sup> Extract from a report to the secretary of the navy on recent improvements in astronomical instruments, by SIMON NEWCOMB.